CLAIMS

We claim:

1. A method for generating energy, comprising:

using reactants to create excited species;

coupling the excited species with electrons by placing the excited species near a conducting surface for electron-jump effect to occur;

creating excited carriers from the coupling of the excited species;

collecting the excited carriers; and

converting the excited carriers into energy.

2. The method for generating energy as claimed in claim 1, wherein the collecting includes collecting the excited carriers using a semiconductor.

3. The method for generating energy as claimed in claim 1, wherein the converting includes converting the excited carriers into chemical potential across a diode junction.

4. The method for generating energy as claimed in claim 1, wherein the converting excited carriers includes energizing with the excited carriers to energize a semiconductor device to emit electromagnetic radiation.

5. The method for generating energy as claimed in claim 4, wherein the semiconductor device is light emitting diode.

6. The method for generating energy as claimed in claim 4, wherein the semiconductor device is a quantum well structure.

7. The method for generating energy as claimed in claim 1, wherein the using reactants include reacting fuel with oxidizer.

8. The method for generating energy as claimed in claim 1, wherein the using reactants includes allowing reactants to enter and exhaust products to leave vicinity of the conducting surface where reactions that create the excited species occur.

9. A device for generating energy, comprising:

a conducting surface for coupling excited species with electrons, the excited species produced by chemical reactions occurring near the conducting surface; and

a semiconductor connected to the conducting surface for collecting excited carriers produced as a result of the excited species coupling with the electrons.

10. The device for generating energy as claimed in claim 9, wherein the excited species couple with electrons of the conducting surface.

11. The device for generating energy as claimed in claim 9, further including a substrate connected to the conducting surface, wherein the excited species couple with electrons of the substrate.

12. The device for generating energy as claimed in claim 9, wherein the semiconductor includes a quantum well.

13. The device for generating energy as claimed in claim 9, wherein the semiconductor includes a semiconductor diode.

14. The device for generating energy as claimed in claim 9, wherein the semiconductor includes a Schottky junction diode.

15. The device for generating energy as claimed in claim 9, wherein the semiconductor includes bipolar semiconductor.

16. The device for generating energy as claimed in claim 9, wherein the semiconductor includes n-type semiconductor for collecting electrons.

17. The device for generating energy as claimed in claim 9, wherein the semiconductor includes p-type semiconductor for collecting holes.

18. The device for generating energy as claimed in claim 9, wherein the semiconductor is doped.

19. The device for generating energy as claimed in claim 9, wherein the semiconductor includes a p-n junction diode.

20. The device for generating energy as claimed in claim 9, wherein the semiconductor includes:

a first electrode in contact with the conducting surface;

a p type semiconductor connected to the first electrode;

an n type semiconductor connected to the p type semiconductor, the n type semiconductor and the p type semiconductor forming a p-n junction; and

a second electrode in contact with the n type semiconductor.

21. The device for generating energy as claimed in claim 9, wherein the semiconductor includes:

a first electrode in contact with the conducting surface;

an n type semiconductor connected to the first electrode;

a p type semiconductor connected to the n type semiconductor, the n type semiconductor and the p type semiconductor forming a p-n junction; and

a second electrode in contact with the p type semiconductor.

22. The device for generating energy as claimed in claim 9, wherein the semiconductor includes a graded or tailored bandgap p-n junction diode.

23. The device for generating energy as claimed in claim 9, wherein the semiconductor includes a graded or tailored bandgap Schottky junction diode.

24. The device for generating energy as claimed in claim 9, wherein the semiconductor is coupled to an optical cavity for emitting light.

25. The device for generating energy as claimed in claim 9, wherein the semiconductor includes p-n junction enabled to emit electromagnetic radiation.

26. The device for generating energy as claimed in claim 9, wherein the distance from the excited species produced by

chemical reaction occurring near the conducting surface to the semiconductor is less than a predetermined multiple of energy mean free paths of the excited carriers.

27. The method for generating energy as claimed in claim 1, wherein the converting includes converting flux of the excited carriers into inverted population of carriers in the semiconductor.

28. The method for generating energy as claimed in claim 27, further including:

extracting energy stored in the inverted population of carriers as electromagnetic radiation.

29. The method for generating energy as claimed in claim 28, wherein the method further includes causing stimulated emission to extract the electromagnetic radiation.